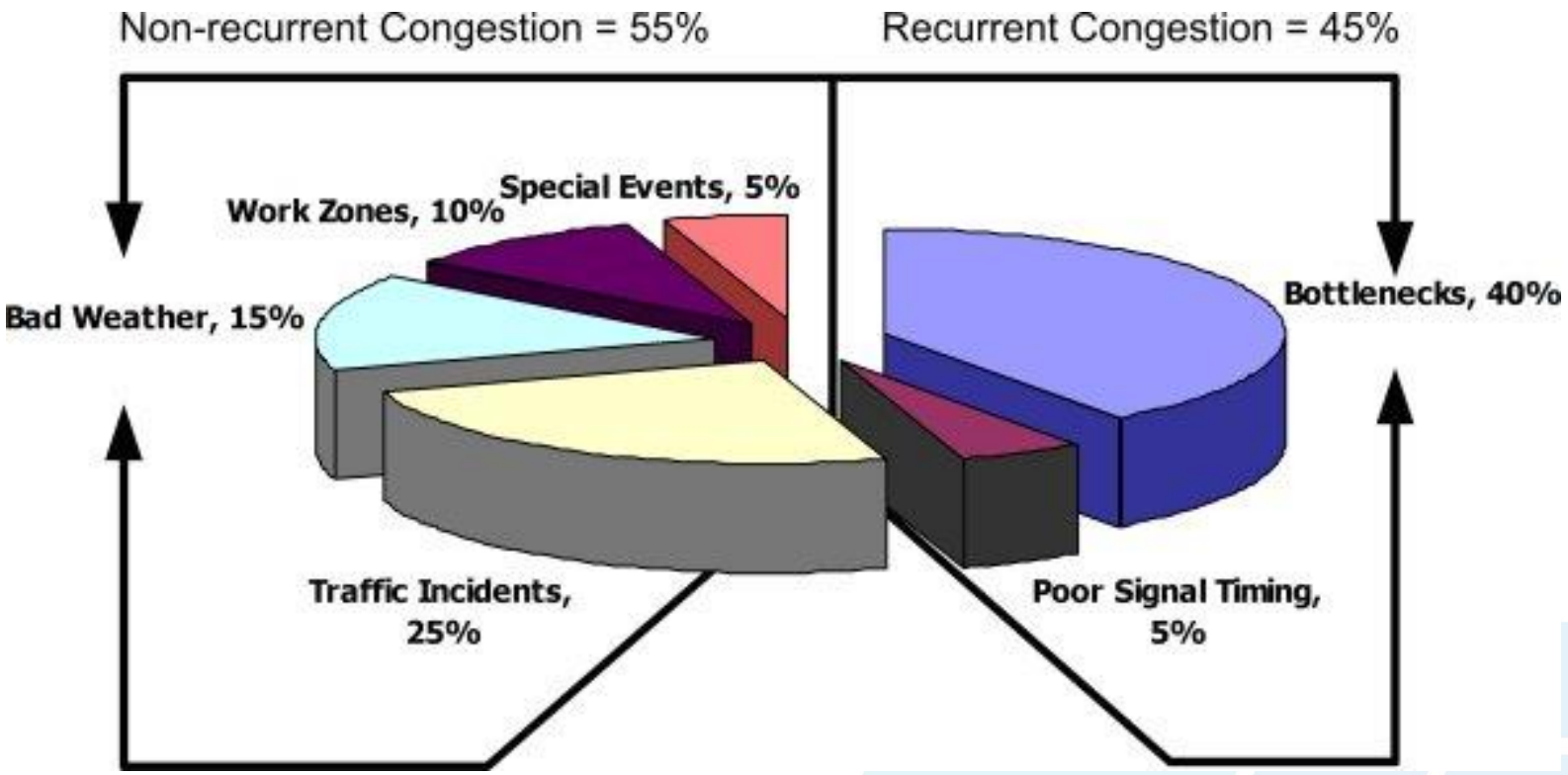
Caltrans

CALTRANS REGIONAL OPERATIONS FORUMS

Traffic Incident Management / Safety in Operations

Effects of Different Events



Managing Non-Recurring Congestion and TSMO

Managing and preparing for these events is an operational philosophy that supports and becomes a foundation for transportation system management and operations (TSMO).

Traffic Incident Management

Traffic Incident Management (TIM)

- Planned, coordinated, multidisciplinary process
- Detect, respond to, and clear traffic incidents
- Restore traffic flow as safely and quickly as possible
  - Reduce duration and impacts of traffic incidents
  - Improve the safety of motorists, crash victims, and responders

National Focus on TIM

Enhanced planning and training of all TIM personnel:

1. Reduce or eliminate responder and motorist injuries and fatalities
2. Promote rapid incident clearance, thereby reducing traffic congestion and vulnerability
3. Develop or enhance local TIM Programs that ultimately benefit corridors, regions, and states
4. Measure performance that demonstrates improved TIM responses and programs over time
5. Emphasize TIM as a system operations “core mission” for all responders

National Unified Goal for TIM

The NUG for TIM is:

Responder Safety

Safe, Quick Clearance

Prompt, Reliable, Interoperable Communications

Why TIM?

Safety

- Victims
- Responders
- Travelers

Why TIM?

In California, since 2010, too many responders have been killed in the line-of-duty while responding to incidents on California's highways:

Law Enforcement - **10 Officers Killed**
Ken Collier, San Diego Sheriff – Feb 28, 2010
Phillip Ortiz, CHP – June 22, 2010
Justin McGrory, CHP – June 27, 2010
Brett Oswald, CHP – June 27, 2010
Ryan Bonaminio, Riverside PD – Nov 7, 2010
Brian Law, CHP – Feb 17, 2014
Juan Gonzalez, CHP – Feb 17, 2014
Kostiuchenko, Ventura Sheriff – Oct 28, 2014
Nathan Taylor, CHP – March 13, 2016
Robert Foley, Alameda Sheriff – Feb 23, 2017

Fire Personnel - **2 Responders Killed**
David Ratledge – Feb 29, 2012
Christopher Douglas – Jul 5, 2013
Ryan Osler – Sept 21, 2016

Caltrans Maintenance – **5Workers Killed**
Gary Smith – Nov 7, 2010
Stephen Palmer – May 4, 2011
Jaime Obeso – June 7, 2011
Richard Gonzalez – June 20, 2011
Jorge Lopez – September 1 2016

EMS – **2 EMS Personnel Killed**
Esteban Bahena – April 1, 2010
Douglas Odgers – May 8, 2011

Towing - **10 Tow Operators Killed**
Michael Sanders – Feb 7, 2011
Christopher Tatro – Dec 17, 2011
David Robinson – Mar 20, 2012
Jesus Salcedo – Mar 30, 2012
Shaun Riddle – Dec 8, 2012
Faapuna Manu - Dec 8, 2012
Ronald Carver – Feb 11, 2013
Christopher Gladden – July 28, 2013
Ricardo Valdez – January 28, 2014
Jabar Issa – January 17, 2015

Discussion Item

- What are your current activities and programs for TIM?
- What has been a significant challenge to your program? How are you addressing that challenge?
- What has the biggest impact on incident response in District 6?
  - Weather?
  - Work zones?
  - Resources?

TIM Programs

- The goal of a TIM program is to work towards a more effective, efficient response for all responding agencies
- Conscious effort to coordinate and plan to create an effective, comprehensive TIM program
- TIM programs and associated committees and task forces are sustained and ongoing

TIM Task Forces/Coalitions

- Forum for incident/emergency responders
  - Law Enforcement
  - Fire/EMS
  - Tow Operators
  - Transportation agencies
  - Communications/outreach

- Training, processes, procedures, major incident debriefings, lessons learned
- Central resource for training materials
- Track TIM performance measures
- Legislation awareness
- Other Benefits?

WaTIMCo
Washington Traffic Incident Management Coalition

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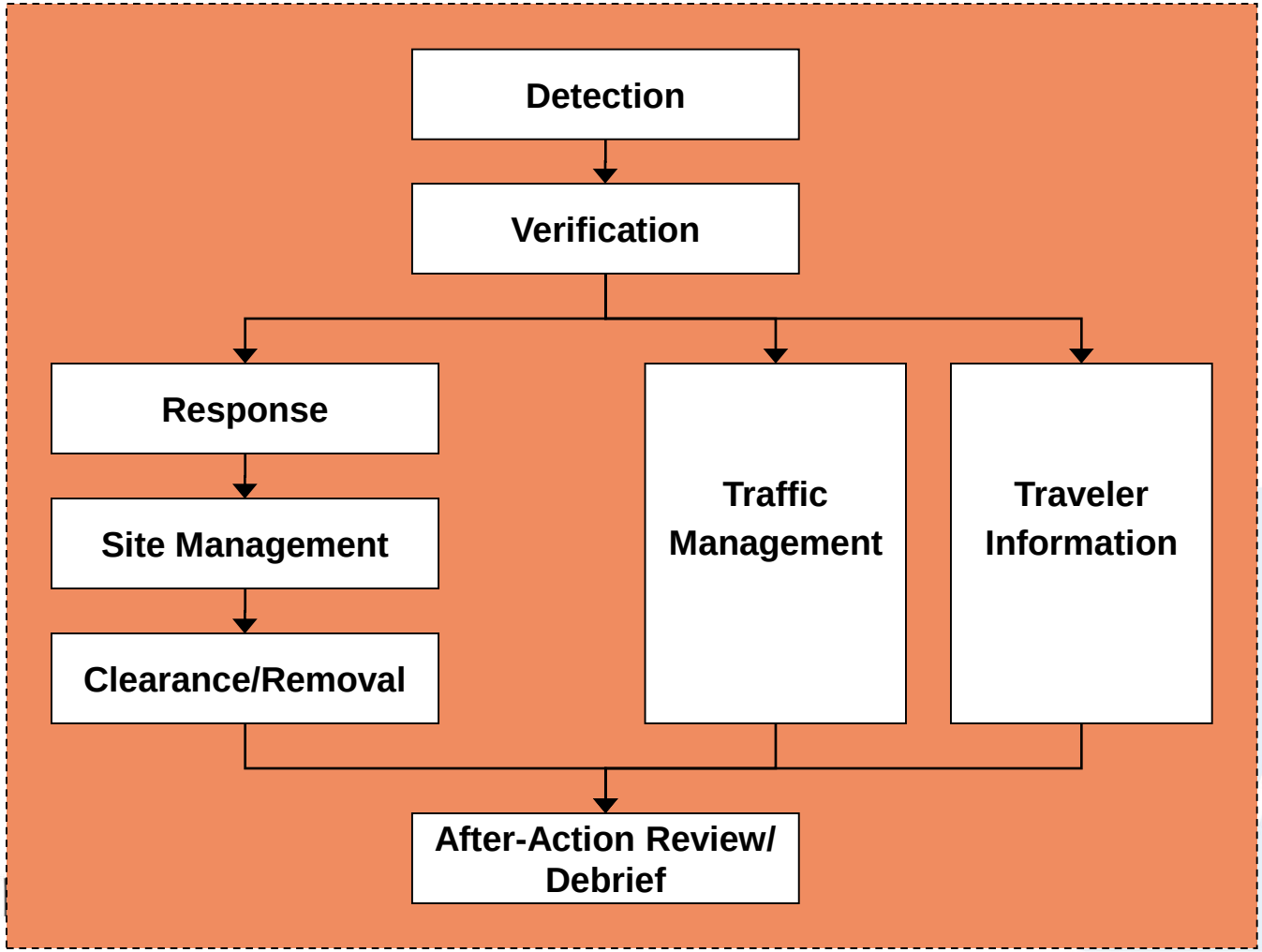
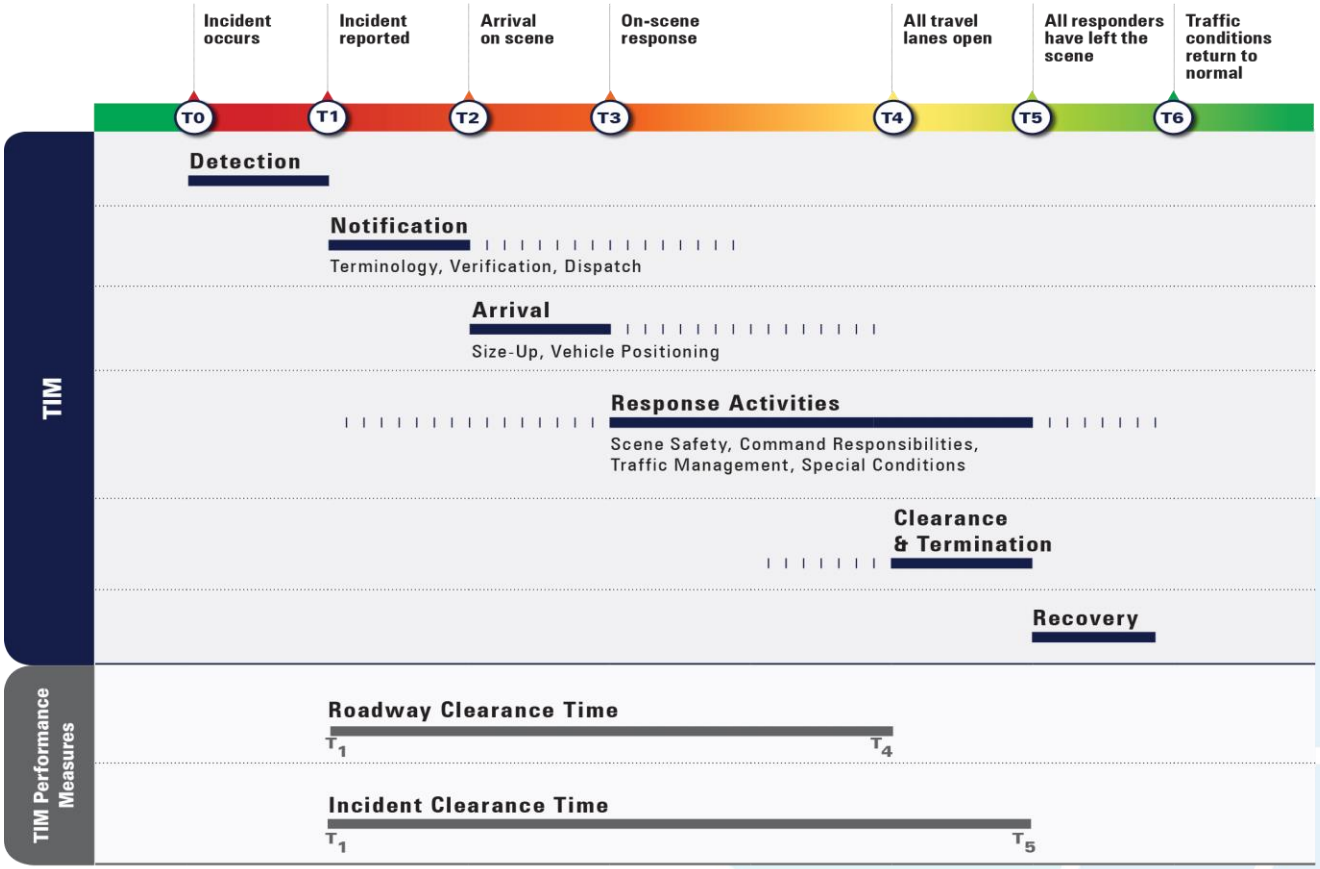
TIM Processes



Incident Timeline: What Does Safe Quick Clearance Mean?



Freeway Service Patrol

- Trained personnel using specially equipped vehicles to:
  - Patrol congested highways,
  - Search for and respond to traffic incidents, and
  - Provide motorist assistance
- One of the most valued services by the public
- Active in several CA counties
  - 650,000 motorist assists each year
- Benefits:
  - Allows law enforcement to focus on other callouts
  - Removes vehicles from travel lanes – limit distraction
  - Safety

Tow Operators and TIM

- Critical part of incident response and clearance
- Unique practices:
  - Heavy tow incentive programs (Georgia)
  - TIM Training required for Tow Contractors (CA, AZ, VA)

Towing – CVC 21719

- Tow operators can use the center median or right shoulder
  - A peace officer determines the obstruction is causing unnecessary delay.
  - A peace officer gives permission to the tow truck driver.
  - The tow truck is operated at a prudent speed with due regard for weather, visibility, and traffic.
  - The tow truck displays flashing amber warning lamps to the front, rear, and both sides.

TIM Training

- Multi-disciplinary training with national curriculum
- Develops cadre of emergency responders who work together at an accident scene in a coordinated manner
- Improves safety to responders and travelers
- Developed by responders for responders

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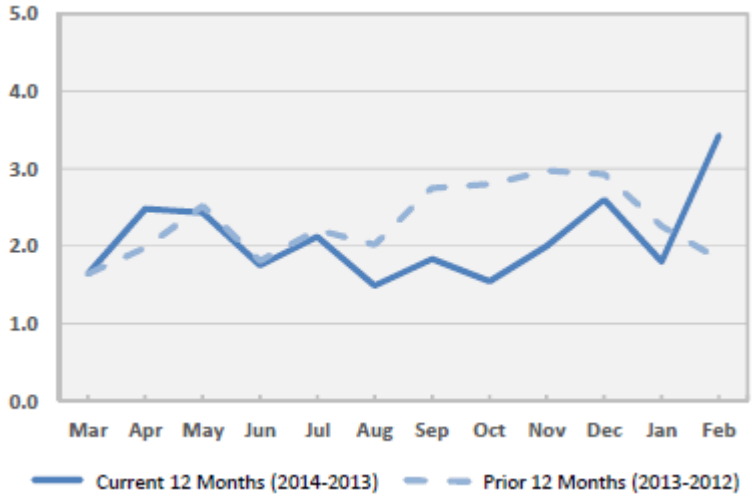
CA TIM Training

- 14 1.5-day “Train-the-Trainer” courses
- 795 4-hour responder courses
- 17,300 total responders trained in CA
  - 460 instructors trained
  - 13,300 responders trained in classes
  - 3,400 responders trained online
  - 200 responders trained with CT video
- Institutionalized:
  - CHP Academy
  - Caltrans Maintenance Academy (NEMO)
  - Towing rotation/FSP
  - EMSA CEUs
  - LEMSA contract requirement

Measuring Success



- What Gets Measured Gets Performed...
- Quantifying TIM benefits will advance program continuity:
  - Builds critical mass for program support from managers and elected officials
  - Ensures buy-in from key TIM stakeholders
- Supports allocation of technical and budget resources
- ***Informs future response strategies and coordination needs***

TIM Performance Measures

- "Roadway" Clearance Time
  - *"One Minute of Delay = 4X Traffic Queue"*
  - Time from first record of an incident by a responsible agency to all lanes being open to traffic
- "Incident" Clearance Time
  - Time from first record to time last responder leaves scene
- Secondary Crashes
  - *"Each Hazard Minute = +2.8% risk increase"*
  - Crashes beginning with the time of detection of the primary incident
    - within the incident scene or
    - within the queue, including the opposite direction

TIM Takeaways

- What are the key areas this region can focus on to improve safety and clearance of incidents?
- Are there unique needs for the 99 corridor?
- Who are the key stakeholders that should be involved?
- What are the top 2 or 3 priority actions?

Safety in Operations

Why Link Safety and Operations?

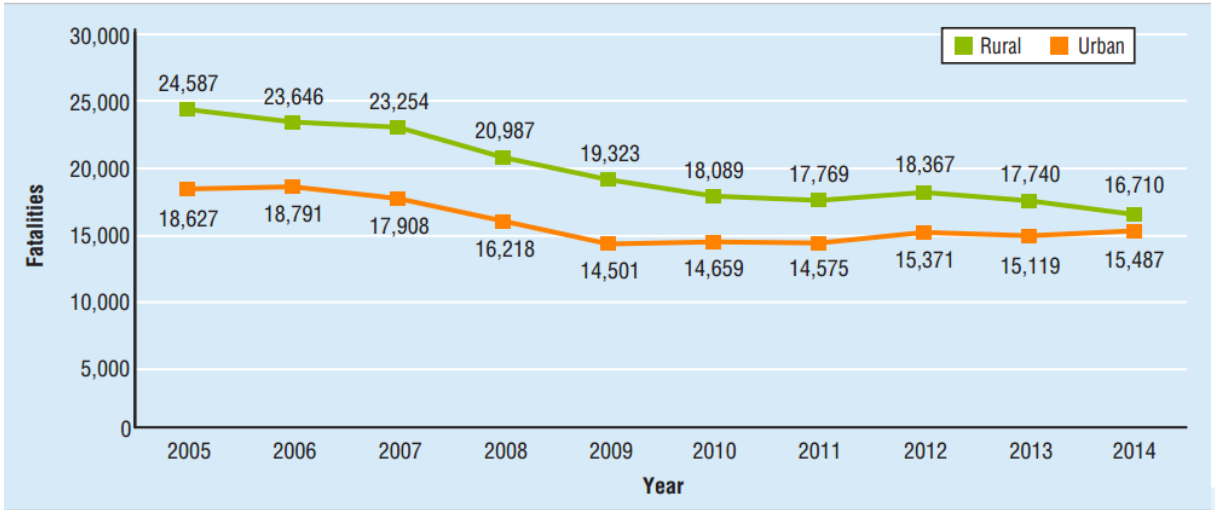
- Highway fatalities and serious injuries at unacceptable levels

- 40,000 traffic fatalities in 2016 nationwide
  - Largest increase in traffic deaths in 50 years
  - Boeing 747-400 carries 520 passengers
  - 2015 traffic fatalities = 67 airline crashes

- 3,680 motor vehicle deaths in CA in 2016
  - Increased 13% over 2015

Rural and Urban Safety

- Nationally –
  - 50% of traffic fatalities occur in rural areas
- Factors
  - Time of day
  - Speed
  - Alcohol
  - Restraint use



Source: NHTSA July 2016

- California
  - 38% of traffic fatalities occur in rural areas
  - What are the primary factors you see?

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Safety Issues on the 99 Corridor

- What are the top safety issues you see on the road network?

- What measures have already been taken?

Safety Measures and TSMO

- Safety is addressed through many different measures
  - Lighting
  - Signs
  - Road/pavement marking
  - Signals
  - Advanced warning of hazards
  - Weather response
  - Physical barriers
- TSMO focuses on
  - Processes to improve safety planning and strategy
  - Root cause analysis
  - Collaborative options

For example…

- Data from ITS and operations systems can help to support safety analyses
  - Performance tracking
- Evaluate safety needs as part of operations design and implementation
- Leverage SHSP implementation
  - Local/regional stakeholders
  - Address common safety concerns
- Outreach and education

Safety Take Aways

- What are the key links between operations and safety?
- What key groups need to work together?

Road Weather

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The Road Weather Problem

- **Safety**
  - 1.26 ± million weather-related crashes/year
    - 5,897 fatalities; 445,303 injuries
  - 23% of all crashes occurred on slick pavement or under adverse weather
- **Mobility**: 15% of delay caused by “bad weather”
- **Productivity:** Weather-related delay adds $3.4 billion to freight costs annually
- **Environment:** Chemicals effect watersheds, air quality and infrastructure

Types of Weather

- Winter Weather
  - Snow, especially first snow
  - Blowing and Drifting Snow
  - Freezing Rain
- Rain
  - Heavy rain or first rain
  - Flooding
- Limited visibility
  - Fog or dust/sand storms
- High winds

More than snow and ice….

Rough Fire near Fresno

Flooding after a winter storm

Tule Fog
in Fresno
Area

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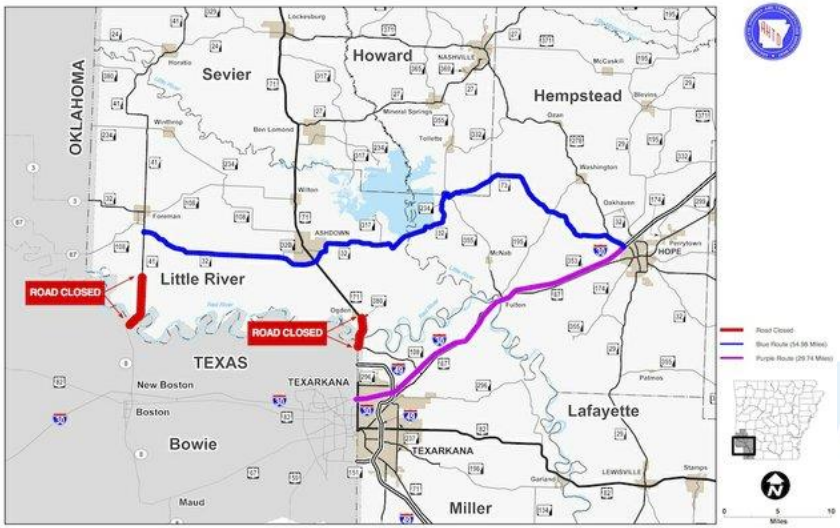
Responding to Severe Weather

- Where does weather management end and emergency management begin?
- Are the severe weather events treated more like emergencies?
- What are some commonalities?
  - Operations
  - Stakeholders/Responders
- How are responses to weather events coordinated across state lines?

Weather Responsive Traffic Management (WRTM)

- Advisory strategies provide information on prevailing and predicted conditions
  - Posting wind or fog warnings on Dynamic Message Signs (DMS)
  - Listing flooded routes on web sites



Weather Responsive Traffic Management (WRTM)

- Control strategies alter the state of roadway devices to permit or restrict traffic
  - Reducing speed limits with Variable Speed Limit (VSL) signs
  - Modifying traffic signal timing based on pavement conditions

Maintenance Decision Support System (MDSS)

- System to support winter maintenance activities
- Capitalizes on existing road and weather data sources
  - Augments data sources where they are weak or where improved accuracy could significantly improve the decision–making task
  - Fuses data to make an open, integrated and understandable presentation of treatment recommendations based on current environmental and road conditions
- Proactive resource equipment and cost management for highly variable winter operations

Road Weather Management Performance Measures

- Will differ on types of weather encountered
- Will differ by agency objectives
- How would hurricane response performance measure differ from a freak snow storm performance measure?
  - ↳ Or, does it?
- What weather related performance measures does your agency use?

Group Discussion

- What weather events do you have to manage?
- What road weather management tools do you use?
- What has been successful?
- What are the gaps you still have?
- What new equipment, systems, or processes are you developing or exploring?
- How are you coordinating with neighboring states?